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Geotechnical
Environmental and
Water Resources
Engineering

February 22, 2007
Project 04516-2

Ms. Irene M. Dale
Environmental Engineer
Bureau of Waste Site Cleanup
Department of Environmental Protection
205B Lowell Street
Wilmington, MA 01887

Dear Ms. Dale:

Re: Immediate Response Action Plan Modification No. 4
50 Tufts Street
Somerville, MA
RTN 3-23246

On behalf of UniFirst Corporation of Wilmington, Massachusetts, we prepared this Immediate Response Action (IRA) Plan Modification No. 4 for a release of chlorinated volatile organic compounds (VOCs) at 50 Tufts Street in Somerville, Massachusetts (the Property). The IRA Plan was originally submitted to DEP on January 9, 2006 and subsequently modified on June 27, September 21, and November 13, 2006.

The Massachusetts Department of Environmental Protection (DEP) assigned Release Tracking Numbers (RTNs) 3-23246, 3-24358, and 3-24376 to reported releases associated with the Site. The Site is currently classified Tier IC. The RTNs for the Site were consolidated under RTN 3-23246 at the time the Tier IC permit application was submitted to DEP on June 16, 2006. The Site location is shown in Figure 1 and a Site Plan in Figure 2.

IRA Modification 4 is for activities conducted at the Capuano Early Childhood Center. IRA activities were initiated on December 27, 2007 and are ongoing. These activities were verbally approved by Ms. Irene Dale of the DEP during frequent phone conversations throughout December 2006 and January and February 2007 between Ms. Dale and Ms. Ileen Gladstone, P.E., LSP of GEI Consultants, Inc.

The IRA Transmittal Form (BWSC105) for IRA Modification 4 was submitted by eDEP on February 22, 2007 and a copy is in Attachment A.

The detection of vapor-phase emissions of measurable concentrations in the school represented a Critical Exposure Pathway (CEP). UniFirst initiated the measures described in this IRA Modification 4 to mitigate the CEP, rather than running calculations and potentially addressing the concentrations detected as an "imminent hazard." For the same reason, Item H3, on Form BWSC105 was not checked. GEI has communicated with the City, however, throughout the IRA process.

REF
354.353
GEI

www.geiconsultants.com

GEI Consultants, Inc.
400 Unicorn Park Drive, Woburn, MA 01801
781.721.4000 fax 781.721.4073

LOCAL
HISTORY
354.
353
GEI

1. CONTACT INFORMATION**Entity Undertaking the IRA**

Brian Keegan
Senior Engineering Manager
UniFirst Corporation
68 Jonspin Road
Wilmington, MA 01887
978.658.8888 ext 645

Licensed Site Professional

Ileen S. Gladstone, P.E., LSP
Vice President
GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801
781.721.4012
LSP License: 9719

2. BACKGROUND

Chlorinated VOCs, particularly PCE, have been measured in soil, soil vapor, groundwater, and indoor air at the Site. The source of the chlorinated VOCs may be associated with the historic handling, storage, and distribution of laundry and dry cleaning chemicals at the Property. Chlorinated VOCs were measured in an indoor air sample collected in the Property building. Chlorinated VOCs have also been detected in groundwater samples collected from monitoring wells located in the neighborhood east of the Property and in the indoor air in some residences located near the Tufts Street Property.

3. IRA OBJECTIVES, PLAN, AND SCHEDULE (310 CMR 40.0424[1][E])**3.1. IRA Objectives**

GEI evaluated the indoor air quality at the Capuano Early Childhood Center by collecting indoor air samples for laboratory testing of chlorinated VOCs. Based on the results of the indoor air testing, GEI then conducted response actions at the Center.

The objectives of the IRA at the Center were to:

- Evaluate the potential for chlorinated VOCs to be present in indoor air.
- Mitigate chlorinated VOCs in indoor air by optimizing the heating, ventilation, and air conditioning (HVAC) system.
- Reduce the potential influx of sub-slab gases by sealing the unit ventilators (UVs) in selected classrooms.
- Reduce the potential influx of sub-slab gases by installing a sub-slab depressurization system (SSDS).
- Monitor the effectiveness of the mitigation conducted.
- Evaluate the subsurface (soil, bedrock, and groundwater) near the Center.

3.2. IRA Activities**3.2.1. Completed IRA Activities**

IRA activities conducted at the Center between December 27, 2006 and February 1, 2007 included:

- Indoor Air Sampling/Testing: Indoor air was tested for chlorinated VOCs using portable photoionization detectors (PIDs) and a portable gas chromatograph (GC). Indoor air samples also were collected into summa canisters and submitted for laboratory testing using U.S. Environmental Protection Agency (EPA) Method TO-15. The initial indoor air testing was conducted between December 27, 2006 and January 13, 2007.
- HVAC Optimization: Environmental Health & Engineering (EH&E) of Newton, Massachusetts evaluated and optimized the HVAC system. Adjustments to the HVAC system corrected the building to operate under positive pressure, as it was designed to do. Gauges to measure pressure within the building have been installed in several locations to monitor pressure relationships within the Center.
- SSDS Installation: A SSDS was designed and installed at the Center. On January 17, 2007, GEI submitted to DEP a design memo presenting the proposed design for the SSDS. A copy of that design memo is in Attachment B. James Ash, P.E., LSP, discussed the SSDS design with Mr. Kyle McAfee of DEP on January 19, 2007, and received DEP's comments verbally. GEI prepared a response to these DEP comments in our memo of January 22, 2007, which is in Attachment B. GEI received permission from the Somerville School Committee on January 22, 2007 to install the SSDS.
- GEI engaged T.Ford Company, Inc. of Georgetown, Massachusetts to install the SSDS between January 27 and 31, 2007. The SSDS was activated on February 1, 2007.
- The system consists of pipes connected to a blower to draw vapors from beneath the building and discharge them through an exhaust pipe above the roof. All of the piping except the exhaust pipe is underground. The pipes were installed beneath six classrooms along the southern side of the Center (Rooms 122, 126, 134, 138, 142, and 146). The blower is currently located in a small temporary enclosure on the southern side of the instruction wing and will be operated for up to six months until the mechanical equipment can be moved to another suitable permanent location.
- Sub-Slab Soil Gas Sampling/Testing: Sub-slab soil gas monitoring points were installed inside the building at six locations to monitor the effectiveness of the SSDS. Monitoring points were installed in the bathrooms of Classrooms 122, 126, 133, 137, 142, and 146.
- UV Sealing: Testing conducted by EH&E of the UVs indicated that they were drawing air and associated vapors from the exterior wall cavity through wall penetrations within and behind the UV cabinets. A cross section of the UV design is shown in Figure 3. To reduce this infiltration and to prevent short circuiting of the subslab ventilation system, these penetrations were sealed. The UVs were removed from the wall and the penetrations were identified and sealed between January 29 and February 1, 2007. The UVs were reinstalled and were fully operational on February 1, 2007.

3.2.2. Planned IRA Activities

GEI will install one shallow overburden groundwater monitoring well at the Center. We will collect selected soil and groundwater samples for laboratory testing for chlorinated VOCs using EPA Method 8260B. Soil gas samples may be collected from the shallow boring and submitted for laboratory testing for chlorinated VOCs using EPA Method TO-15.

4. REMEDIATION WASTE MANAGEMENT

The installation of the SSDS included the excavation of an approximately 2 feet deep trench along the southern wall of the Center. The excavated soil was from above the water table and was not considered remediation waste. The majority of the excavated soil was reused as backfill in the

trench. Approximately 2 cubic yards of soil, that was geotechnically unsuitable to use as backfill, was transported to T.Ford's construction yard for temporary storage. Soil samples of the stockpiled soil were collected for waste characterization and the soil will be appropriately disposed following the receipt of the laboratory analysis. No dewatering was performed during installation of the SSDS.

The soil and groundwater generated during installation of the monitoring wells will be managed as remediation waste. Water purged from the monitoring wells during well development will be disposed of offsite as remediation waste.

5. ENVIRONMENTAL MONITORING PLAN AND PERMITS

5.1. Environmental Monitoring Plan

The monitoring program to evaluate the effectiveness of the SSDS was described in our memo of January 22, 2007. The monitoring plan has been amended to address Ms. Irene Dales's comments of January 23, 2007, of which a copy is included in Attachment B.

5.1.1. Prior to SSDS Start-up

Prior to start-up of the SSDS GEI measured:

- VOC concentrations at each of the 6 monitoring points using a ppbRAE and collected subslab vapor samples using summa canisters for laboratory analysis from the sub-slab monitoring points in Classrooms 137, 142, and 146.
- Subslab pressure at each of 6 monitoring points using a manometer with a detection limit of 0.01-inch water.
- Subslab VOC concentrations at each sub-slab piping penetration using a ppbRAE.

5.1.2. After SSDS Start-up

After startup of the SSDS, GEI measured the following on a daily basis for one week:

- Subslab VOC concentrations at each of the 6 monitoring points using a ppbRAE.
- Subslab pressure using a manometer with a detection limit of 0.01-inch water.
- VOC concentrations at each sub-slab piping penetration using a ppbRAE.
- VOC concentrations in the combined influent to the blower in the temporary enclosure and from a sampling port located in the exhaust stack using a ppbRAE.

5.1.3. Six Days After SSDS Start-up

After six days of operation of the SSDS, GEI measured:

- VOC concentrations inside Classrooms 122, 126, 134, 138, 142, 146 and 141 using summa canisters for laboratory analysis.

5.1.4. One Week After SSDS Start-up

After one week of operation of the SSDS, GEI measured:

- Subslab VOC concentrations at each of the six monitoring points using a ppbRAE and collected subslab vapor samples using summa canisters for laboratory analysis from the subslab monitoring points in Classrooms 137, 142, and 146.
- Subslab pressure at each of six monitoring points using a manometer with a detection limit of 0.01-inch water.
- VOC concentrations in ambient air on the roof 20 feet downwind from the exhaust stack using summa canisters for laboratory analysis.

5.1.5. One Month After SSDS Start-up

After one month of operation of the SSDS, GEI will measure monthly for three months:

- VOC concentrations inside Classrooms 126, 138, 142, 146, and 141 using summa canisters for laboratory analysis.
- Sub-slab VOC concentrations at each of the 6 monitoring points using a ppbRAE.
- VOC concentrations in the combined influent to the blower in the temporary enclosure and from a sampling port located in the exhaust stack using a ppbRAE.

5.1.6. Three Months After SSDS Start-up

After three months of operation of the SSDS, GEI will measure quarterly for one year:

- VOC concentrations inside Classrooms 126, 138, 142, 146, and 141 using summa canisters for laboratory analysis.
- Sub-slab VOC concentrations at each of 6 monitoring points using a ppbRAE.
- VOC concentrations in the combined influent to the blower in the temporary enclosure and from a sampling port located in the exhaust stack using a ppbRAE.

After one year of quarterly sampling, additional monitoring, if required, will be evaluated and submitted to DEP for review and comment.

In addition, the combined inlet to the blower will have a permanent vacuum gauge that will be checked during each inspection. A weekly mechanical check will be performed. Permanent gauges at the interior monitoring points are not practical due to the low detection limits and installation and power requirements for that type of gauge. We will monitor those points with hand-held meters. The SSDS will also be equipped with an autodialer that will have two sensors: one for power failure and one for loss of vacuum in the intake manifold.

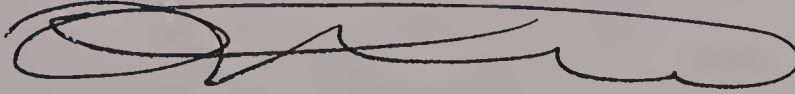
5.2. Permits

The Somerville School Committee approved the installation of the SSDS, sub-slab monitoring points and groundwater monitoring wells at their meeting of January 22, 2007.

Please contact me at 781.721.4012 or igladstone@geiconsultants.com if you have any questions.

Sincerely,

GEI CONSULTANTS, INC.



Ileen S. Gladstone, P.E., LSP
Vice President

MCE/ISG:jah
Enclosures

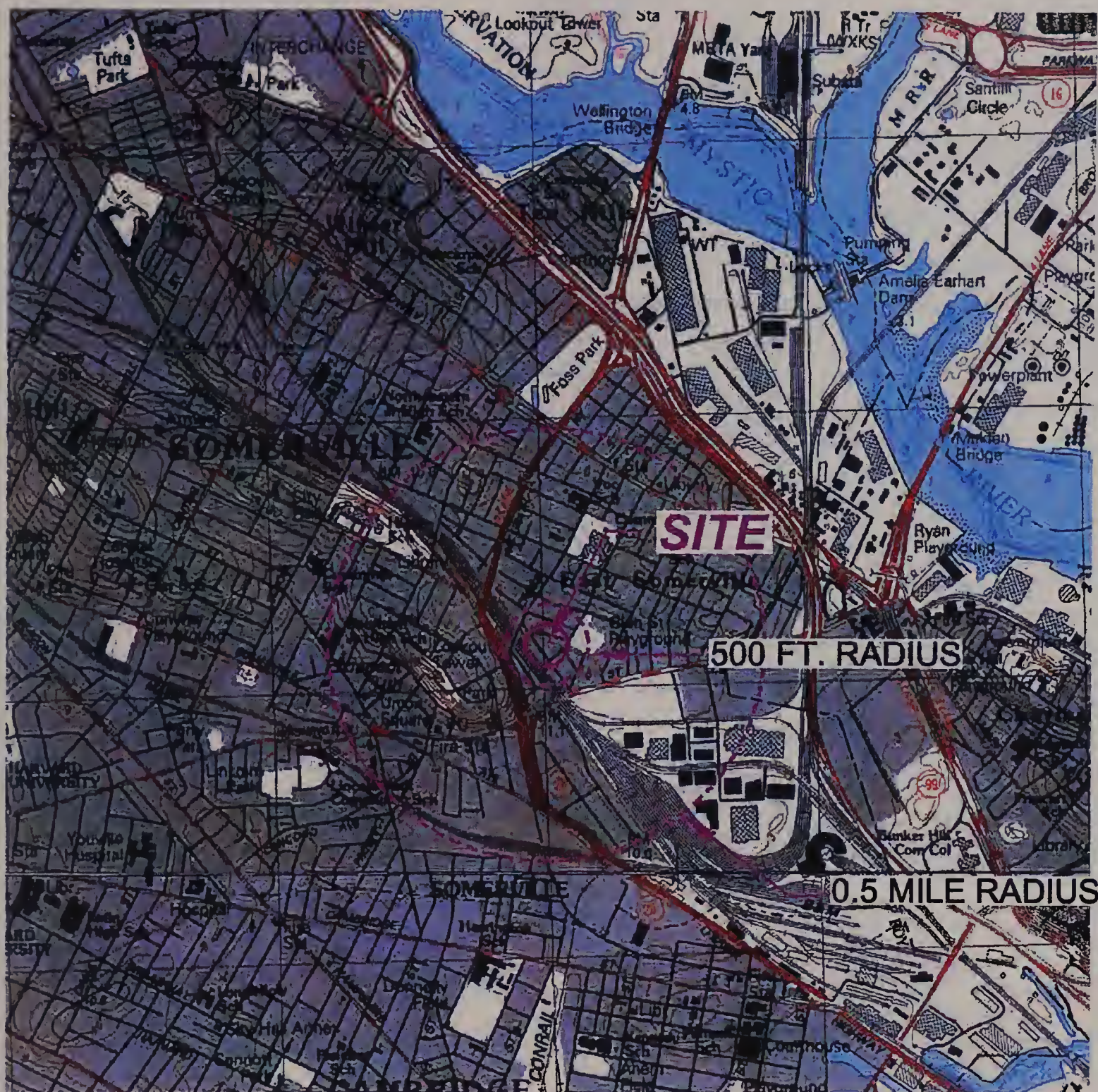
c: Brian Keegan, UniFirst Corporation
Peter Mills, City of Somerville

N:\04516\Final\15.0 Report Original\15.10 IRA Plan Modification No. 4\IRA Plan Mod #4.DOC



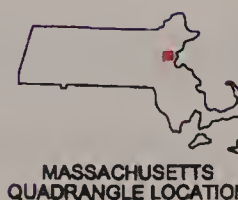
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0 1000 2000 4000 6000
SCALE, FEET

This Image provided by MassGIS is taken from
U.S.G.S. Topographic 7.5 X 15 Minute Series
Boston North, MA Quadrangle, 1985.
Datum is National Geodetic Vertical Datum (NGVD).
Contour Interval is 3 Meters.



MASSACHUSETTS
QUADRANGLE LOCATION

Immediate Response Action Modification No. 4
Michael E. Capuano Early Childhood Center
Somerville, Massachusetts

UniFirst Corporation
Wilmington, Massachusetts



SITE LOCATION MAP

Project 04516-2

February 2006

Fig. 1

HVAC CONTRACTOR SHALL PROVIDE INSULATION FOR ALL SURFACES BEHIND UNIT VENTILATOR INCLUDING OUTSIDE WALL, UNIT VENT BACK WALL, AND AT SIDES OF SPACE BEHIND UNIT VENT (REFER TO SPECIFICATIONS).

TRIM FULL SHEETMETAL BACK TO MAXIMUM OPENING AREA, COORDINATE WITH LOUVER CONNECTION. GASKET THIS INTERFACE TO INSURE MINIMAL LEAKAGE AND UNIT ACCESSIBILITY.

BOTTOM OF PLENUM PITCH @ 15°

G.C. SHALL PROVIDE 1/2" SQ. ALUMINUM BIRD SCREEN AT INSIDE FACE OF ACTIVE LOUVER AREA, SET IN REMOVABLE FRAME.

LOUVER BY G.C. REFER TO ARCHITECTURAL DRAWINGS FOR OVERALL SIZE.

FOLD BOTTOM OF PLENUM SHEETMETAL OVER TOP OF BOTTOM (ACTIVE) BLADE OF LOUVER FOR PLENUM DRAINAGE.

2" THICK DOUBLE WALL INSULATING BOARD OVER ALL UNUSED LOUVER AREA AND DUCTWORK BY ASC.

UNIT VENTILATOR (Typical)

NOTE:

FIGURE BASED ON DETAIL FROM PLAN TITLED "EDGERLY EARLY CHILDHOOD DEVELOPMENT CENTER, SOMERVILLE, MASSACHUSETTS, ROOF PLAN - HVAC" DATED 06/10/01 BY HMFH ARCHITECTS AND TMP CONSULTING ENGINEERS, INC.

Not To Scale

Immediate Response Action Modification No. 4
Michael E. Capuano Early Childhood Center
Somerville, Massachusetts

UniFirst Corporation
Wilmington, Massachusetts



Project 04516-2

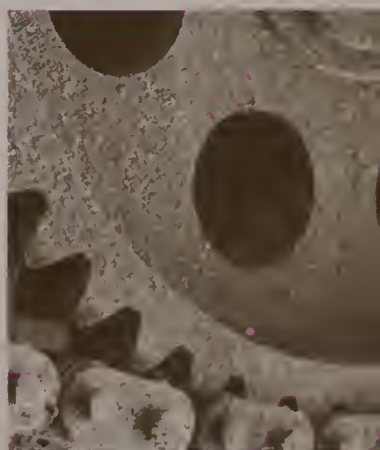
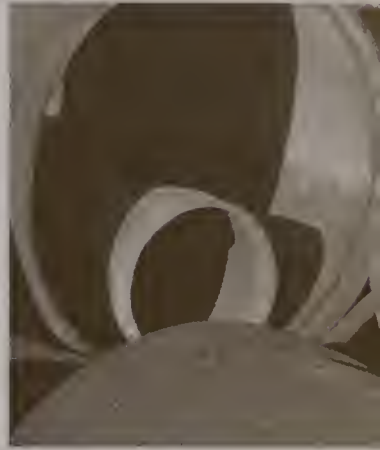
UNIT VENTILATOR

February 2007

Fig. 3



Geotechnical
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ATTACHMENT A
Immediate Response Action (IRA) Transmittal Form
(BWSC105)



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC105

IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL
FORM

Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3 - ~~23246~~

26114

A. RELEASE OR THREAT OF RELEASE LOCATION:

1. Release Name/Location Aid: 50 TUFTS ST & PROP ACROSS THE ST
2. Street Address: 50 TUFTS ST
3. City/Town: SOMERVILLE 4. ZIP Code: 02145-4129
5. UTM Coordinates: a. UTM N: 4694313 b. UTM E: 328046
- ☐ 6. Check here if a Tier Classification Submittal has been provided to DEP for this disposal site.
☐ a. Tier IA ☐ b. Tier IB ☐ c. Tier IC ☐ d. Tier II
- ☐ 7. Check here if this location is Adequately Regulated, pursuant to 310 CMR 40.0110-0114. Specify Program (check one):
☐ a. CERCLA ☐ b. HSWA Corrective Action ☐ c. Solid Waste Management
☐ d. RCRA State Program (21C Facilities)

B. THIS FORM IS BEING USED TO: (check all that apply)

1. List Submittal Date of Initial IRA Written Plan (if previously submitted): 1/9/2006
(mm/dd/yyyy)
- ☐ 2. Submit an Initial IRA Plan.
- ☒ 3. Submit a Modified IRA Plan of a previously submitted written IRA Plan.
- ☐ 4. Submit an Imminent Hazard Evaluation. (check one)
☐ a. An Imminent Hazard exists in connection with this Release or Threat of Release.
☐ b. An Imminent Hazard does not exist in connection with this Release or Threat of Release.
☐ c. It is unknown whether an Imminent Hazard exists in connection with this Release or Threat of Release, and further assessment activities will be undertaken.
☐ d. It is unknown whether an Imminent Hazard exists in connection with this Release or Threat of Release. However, response actions will address those conditions that could pose an Imminent Hazard.
- ☐ 5. Submit a request to Terminate an Active Remedial System or Response Action(s) Taken to Address an Imminent Hazard.
- ☐ 6. Submit an IRA Status Report.
- ☐ 7. Submit a Remedial Monitoring Report. (This report can only be submitted through eDEP.)
a. Type of Report: (check one) ☐ i. Initial Report ☐ ii. Interim Report ☐ iii. Final Report
b. Frequency of Submittal: (check all that apply)
☐ i. A Remedial Monitoring Report(s) submitted monthly to address an Imminent Hazard.
☐ ii. A Remedial Monitoring Report(s) submitted monthly to address a Condition of Substantial Release Migration.
☐ iii. A Remedial Monitoring Report(s) submitted concurrent with a IRA Status Report.
c. Number of Remedial Systems and/or Monitoring Programs: _____
- A separate BWSC105A, IRA Remedial Monitoring Report, must be filled out for each Remedial System and/or Monitoring Program addressed by this transmittal form.



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC105

IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL
FORM

Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3

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23248

26114

B. THIS FORM IS BEING USED TO (cont.): (check all that apply)

☐ 8. Submit an IRA Completion Statement.

☐ a. Check here if future response actions addressing this Release or Threat of Release notification condition will be conducted as part of the Response Actions planned or ongoing at a Site that has already been Tier Classified under a different Release Tracking Number (RTN). When linking RTNs, rescoring via the NRS is required if there is a reasonable likelihood that the addition of the new RTN(s) would change the classification of the site.

b. Provide Release Tracking Number of Tier Classified Site (Primary RTN):

-

These additional response actions must occur according to the deadlines applicable to the Primary RTN. Use the Primary RTN when making all future submittals for the site unless specifically relating to this Immediate Response Action.

☐ 9. Submit a Revised IRA Completion Statement.

(All sections of this transmittal form must be filled out unless otherwise noted above)

C. RELEASE OR THREAT OF RELEASE CONDITIONS THAT WARRANT IRA:

1. Identify Media Impacted and Receptors Affected: (check all that apply)

- ☒ a. Air ☐ b. Basement ☒ c. Critical Exposure Pathway ☐ d. Groundwater ☐ e. Residence
☐ f. Paved Surface ☐ g. Private Well ☐ h. Public Water Supply ☒ i. School ☐ j. Sediments
☐ k. Soil ☐ l. Storm Drain ☐ m. Surface Water ☐ n. Unknown ☐ o. Wetland ☐ p. Zone 2
☐ q. Others Specify: _____

2. Identify Oils and Hazardous Materials Released: (check all that apply)

- ☐ a. Oils ☒ b. Chlorinated Solvents ☐ c. Heavy Metals
☐ d. Others Specify: _____

D. DESCRIPTION OF RESPONSE ACTIONS: (check all that apply, for volumes list cumulative amounts)

- | | |
|--|---|
| <input type="checkbox"/> 1. Assessment and/or Monitoring Only | <input type="checkbox"/> 2. Temporary Covers or Caps |
| <input type="checkbox"/> 3. Deployment of Absorbent or Containment Materials | <input type="checkbox"/> 4. Temporary Water Supplies |
| <input checked="" type="checkbox"/> 5. Structure Venting System | <input type="checkbox"/> 6. Temporary Evacuation or Relocation of Residents |
| <input type="checkbox"/> 7. Product or NAPL Recovery | <input type="checkbox"/> 8. Fencing and Sign Posting |
| <input type="checkbox"/> 9. Groundwater Treatment Systems | <input type="checkbox"/> 10. Soil Vapor Extraction |
| <input type="checkbox"/> 11. Bioremediation | <input type="checkbox"/> 12. Air Sparging |



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC105

IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL
FORM Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3 - ~~23245~~
26114

D. DESCRIPTION OF RESPONSE ACTIONS (cont.): (check all that apply, for volumes list cumulative amounts)

☐ 13. Excavation of Contaminated Soils

☐ a. Re-use, Recycling or Treatment

☐ i. On Site Estimated volume in cubic yards _____

☐ ii. Off Site Estimated volume in cubic yards _____

ii. Receiving Facility: _____ Town: _____ State: _____

ii. Receiving Facility: _____ Town: _____ State: _____

iii. Describe: _____

☐ b. Store

☐ i. On Site Estimated volume in cubic yards _____

☐ ii. Off Site Estimated volume in cubic yards _____

ii. Receiving Facility: _____ Town: _____ State: _____

ii. Receiving Facility: _____ Town: _____ State: _____

☐ c. Landfill

☐ i. Cover Estimated volume in cubic yards _____

Receiving Facility: _____ Town: _____ State: _____

☐ ii. Disposal Estimated volume in cubic yards _____

Receiving Facility: _____ Town: _____ State: _____

☐ 14. Removal of Drums, Tanks or Containers:

a. Describe Quantity and Amount: _____

b. Receiving Facility: _____ Town: _____ State: _____

c. Receiving Facility: _____ Town: _____ State: _____

☐ 15. Removal of Other Contaminated Media:

a. Specify Type and Volume: _____

b. Receiving Facility: _____ Town: _____ State: _____

c. Receiving Facility: _____ Town: _____ State: _____

☐ 16. Other Response Actions:

Describe: _____

☐ 17. Use of Innovative Technologies:

Describe: _____



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC105

IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL
FORM

Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3

- ~~23246~~

26114

E. LSP SIGNATURE AND STAMP:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> if Section B of this form indicates that an **Immediate Response Action Plan** is being submitted, the response action(s) that is(are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is(are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) complies(y) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that an **Imminent Hazard Evaluation** is being submitted, this Imminent Hazard Evaluation was developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and the assessment activity(ies) undertaken to support this Imminent Hazard Evaluation comply(ies) with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000;

> if Section B of this form indicates that an **Immediate Response Action Status Report** and/or a **Remedial Monitoring Report** is(are) being submitted, the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that an **Immediate Response Action Completion Statement** or a request to **Terminate an Active Remedial System or Response Action(s) Taken to Address an Imminent Hazard** is being submitted, the response action(s) that is(are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is(are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

1. LSP #: 9719

2. First Name: ILEEN S

3. Last Name: GLADSTONE

4. Telephone: 7817214012

5. Ext.:

6. FAX:

7. Signature:

8. Date:

(mm/dd/yyyy)

9. LSP Stamp:



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC105

**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL
FORM** Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3 - ~~23240~~
26114

F. PERSON UNDERTAKING IRA:

1. Check all that apply: ☐ a. change in contact name ☐ b. change of address ☐ c. change in the person undertaking response actions
2. Name of Organization: **UNIFIRST CORP**
3. Contact First Name: **BRIAN** 4. Last Name: **KEEGAN**
5. Street: **68 JONSPIN RD** 6. Title: **ENV ENG MANAGER**
7. City/Town: **WILMINGTON** 8. State: **MA** 9. ZIP Code: **01887-0000**
10. Telephone: **8003477888** 11. Ext.: 12. FAX:

G. RELATIONSHIP TO RELEASE OR THREAT OF RELEASE OF PERSON UNDERTAKING IRA:

- ☒ 1. RP or PRP ☐ a. Owner ☐ b. Operator ☐ c. Generator ☐ d. Transporter
☒ e. Other RP or PRP Specify: **OTHER PRPS**
- ☐ 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)
- ☐ 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))
- ☐ 4. Any Other Person Undertaking IRA Specify Relationship:

H. REQUIRED ATTACHMENT AND SUBMITTALS:

- ☐ 1. Check here if any Remediation Waste, generated as a result of this IRA, will be stored, treated, managed, recycled or reused at the site following submission of the IRA Completion Statement. If this box is checked, you must submit one of the following plans, along with the appropriate transmittal form.
☐ a. A Release Abatement Measure (RAM) Plan (BWSC106) ☐ b. Phase IV Remedy Implementation Plan (BWSC108)
- ☐ 2. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.
- ☐ 3. Check here to certify that the Chief Municipal Officer and the Local Board of Health were notified of the implementation of an Immediate Response Action taken to control, prevent, abate or eliminate an Imminent Hazard.
- ☐ 4. Check here to certify that the Chief Municipal Officer and the Local Board of Health were notified of the submittal of a Completion Statement for an Immediate Response Action taken to control, prevent, abate or eliminate an Imminent Hazard.
- ☐ 5. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to the DEP Regional Office.
- ☒ 6. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC105

**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL
FORM**

Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3

- 23248

26114

I. CERTIFICATION OF PERSON UNDERTAKING IRA:

1. I, **BRIAN KEEGAN**, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: 
Signature

3. Title: **ENV ENG MANAGER**

4. For: **UNIFIRST CORP**
(Name of person or entity recorded in Section F)

5. Date: 
(mm/dd/yyyy)

☐ 6. Check here if the address of the person providing certification is different from address recorded in Section F.

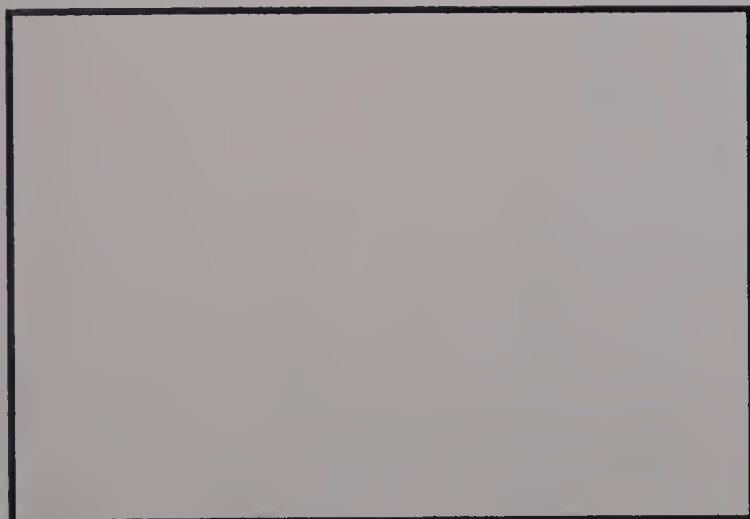
7. Street: _____

8. City/Town: _____ 9. State: _____ 10. ZIP Code: _____

11. Telephone: _____ 12. Ext.: _____ 13. FAX: _____

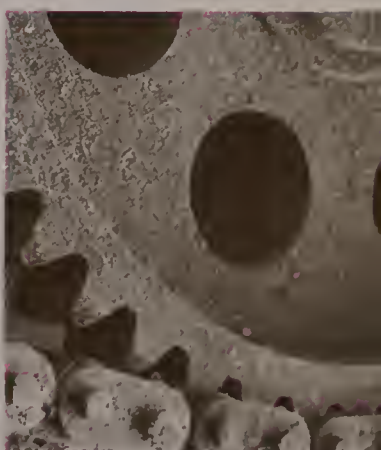
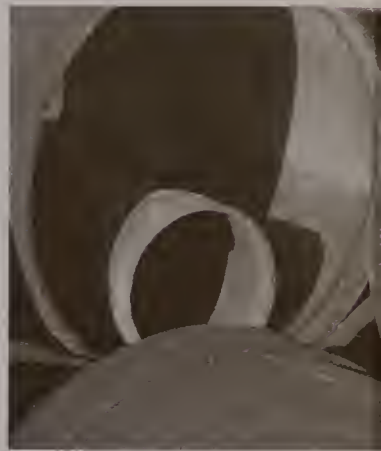
YOU ARE SUBJECT TO AN ANNUAL COMPLIANCE ASSURANCE FEE OF UP TO \$10,000 PER BILLABLE YEAR FOR THIS DISPOSAL SITE. YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Date Stamp (DEP USE ONLY:)





Geotechnical
Environmental and
Water Resources
Engineering



ATTACHMENT B
Memorandums and Correspondence

From: "Dale, Irene (DEP)" <Irene.Dale@state.ma.us>
To: <igladstone@geiconsultants.com>
Date: 1/23/2007 5:32:12 pm
Subject: Monitoring Plan

CC: "Dale, Irene (DEP)" <Irene.Dale@state.ma.us>, <...
Ileen-

Here are my questions/comments on the monitoring plan-

1. Prior and after start-up, the plan states Summa canisters will be used for 3 locations. Which 3? How will this be determined? Will the same 3 locations be used both before and after start-up?
2. One week after startup, you are planning to measure VOC concentrations on the roof 20 feet downwind. At the same time, I would also like VOC concentrations from the exhaust stack at the roofline using a ppbRAE.
3. After 3 months of operation, additional monitoring will be required. I'd like some kind of gauge so that a weekly mechanical check can quickly and easily be done. Will there be permanent pressure gauges, or permanent gauges for measuring the vacuum? Along with this I would like quarterly Summa canisters (48-hour turnaround not needed unless a problem is suspected).

Irene

Memo

To: Ileen Gladstone, P.E., LSP
From: Jim Ash, P.E., LSP
Date: 1/17/2007
Re: Michael E. Capuano Early Childhood Center – Interim Sub-Slab Depressurization System Design
 GEI Project Number 04516-2

This memorandum presents the proposed design of an interim sub-slab depressurization system (SSDS) for the Michael E. Capuano Early Childhood Center. The interim system was designed to control the migration of volatile organic compound (VOC) vapors from beneath the floor slab. It will be installed under six classrooms on the eastern end of the school (Rooms 122, 126, 134, 138, 142, and 146). The system is called 'interim' because we propose to install the mechanical equipment in a small temporary enclosure on the southern side of the instruction wing and operate the system for up to six months until a suitable permanent system can be designed and installed. Preliminary drawings of the primary elements of the interim system are attached for your review.

The installation of the SSDS will consist of the following key elements:

- Excavation of a 2-foot deep trench adjacent to the foundation of the building from Classroom 122 to Classroom 146. The trench will be approximately 3 feet wide and will require removal of the paved sidewalk. (The existing granite curb will remain and sidewalk will be restored after the installation is complete.)
- Coring 3-inch-diameter holes through the foundation wall from the outside of the building that will penetrate into the fill beneath the concrete floor slab. The holes will not be visible from inside the classrooms.
- Inserting short sections of 2-inch-diameter PVC pipes into the newly cored holes and connecting the pipes to 3-inch-diameter PVC manifold pipes in the trench on the outside of the building. The piping penetrations will be sealed with hydraulic cement.
- The manifold pipes will run along the outside of the building below ground in the trench to a small temporary enclosure that houses a 1.5-horsepower electric blower. The exhaust from the blower will be discharged 8 feet above the roofline of the building through a vent pipe attached to the exterior wall of the building. Temporary power will be provided to the enclosure, likely from the roof of the school. The temporary enclosure will be a lockable, rigid plastic, garden-style shed.
- The blower will draw vapors from beneath the floor slab and will operate 24 hours per day. The control panel for the blower will include an autodialer that will automatically notify GEI if the system shuts down.
- After the piping is installed, the trench will be backfilled with the excavated soil and repaved. (If pavement is not available due to weather conditions, a layer of pea gravel or crushed stone will be placed as temporary cover.)
- Almost all piping will be underground and will not be visible. The exception is the exhaust pipe which will exit the roof of the temporary enclosure and run vertically up the outside wall of the

school to its discharge point approximately 8 feet above the roofline. Valves and sampling ports at each piping penetration will be accessed through road boxes similar to those used for lawn irrigation systems.

- Monitoring points will be installed through the floor slab inside the building in six of the classroom restrooms. The monitoring points will consist of 3-inch-diameter holes through the tile and concrete floor and will be fitted with flush-mounted, bolted covers. Tubing will be installed inside the holes that will allow for periodic collection of sub-slab vapor samples that will be used to evaluate the effectiveness of the system.

We anticipate that the piping penetrations and underground piping installed for the interim system will be suitable for the permanent system. However, additional foundation penetrations and subsurface piping may be installed at other classrooms along the southern side of the school if warranted based on future indoor sampling and the effectiveness of the interim system.

The permanent system might not require continuous operation of an electric blower, but rather may consist of wind-driven ventilators installed on vent pipes above the roofline. Details of the permanent system, including locations of exterior piping and the permanent blower location, if required, will be presented to school and city officials for review and approval.

We can begin installation of the proposed interim system within 2 days of authorization to proceed. We anticipate that the work will require 3 to 4 days to complete, and that portions can be completed on weekends or after school hours to minimize disruptions to the students and faculty.

JRA/ISG:lek

N:\04516\Final\Capuano3.doc

LEGEND:

- ⊗ MONITORING WELL INSTALLED BY SANBORN HEAD ASSOCIATES, 2002
- ⊙ MONITORING WELL INSTALLED BY GEOINSIGHT, JUNE 2004
- ⊙ SOIL BORING ADVANCED BY GEOINSIGHT, AUGUST 2004
- ⊙ MONITORING WELL INSTALLED BY GEI, MAY 2006
- ⊙ MONITORING WELL INSTALLED PREVIOUSLY, DATE UNKNOWN
- CHAIN LINK FENCE
- 138 ROOM NUMBER AT CAPUANO SCHOOL

MICHAEL E. CAPUANO SCHOOL

GYMNASIUM
CAFETERIA
KITCHEN

MORTON STREET

GLEN STREET

DELL STREET

TUFTS STREET

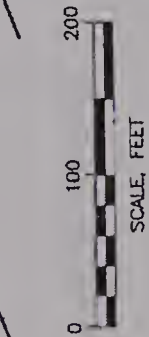
ALSTON STREET

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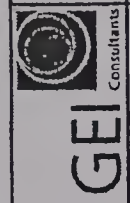
WASHINGTON STREET

GENERAL NOTES:

1. HORIZONTAL CONTROL FOR THIS PLAN WAS ESTABLISHED BY GPS AND IS BASED ON THE NORTH AMERICAN DATUM OF 1983.
2. VERTICAL CONTROL FOR THIS PLAN WAS ESTABLISHED BY GPS AND IS BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988.
3. STREET AND PROPERTY LINES BASED ON SOMERVILLE ASSESSORS MAPS AND ARE BEST FIT RELATIVE TO THE LOCATION OF THE 50 TUFTS ST. BUILDING.
4. EXISTING MONITORING WELL LOCATIONS AND ELEVATIONS WERE ESTABLISHED BY AN ON THE GROUND SURVEY BY BSC GROUP, INC. ON MAY 31, 2006. PVC AND GROUND ELEVATIONS WERE ESTABLISHED BY TRIGONOMETRIC METHODS USING A TOTAL STATION.



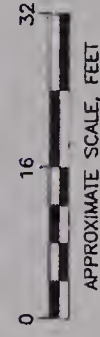
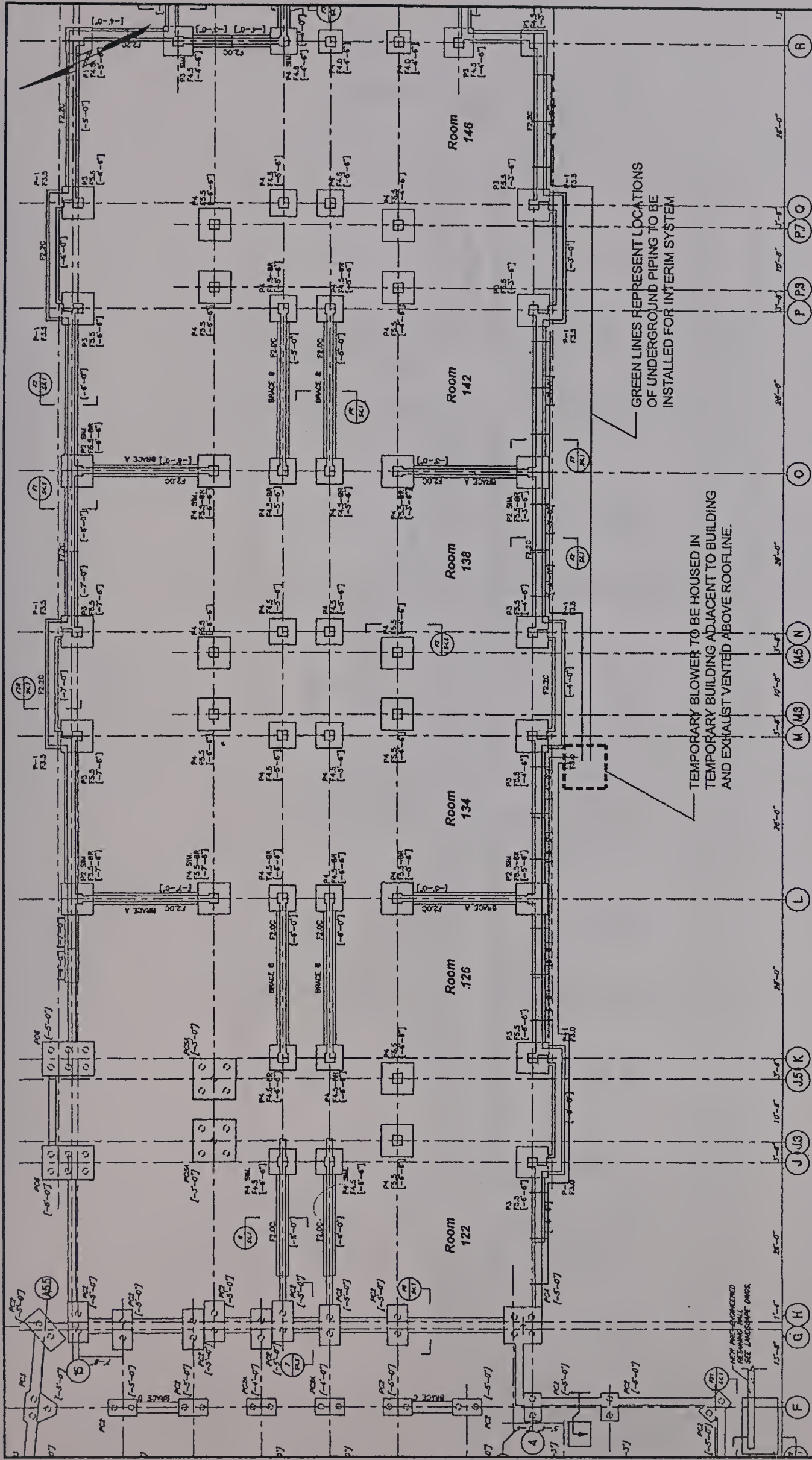
50 Tufts Street
Somerville, Massachusetts



SITE PLAN

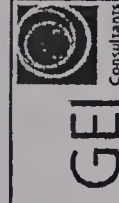
Project 04516-2 January 2007 Fig. 1

N:04516-2-25 ptc/dgm 1/17/07



- NOTES:
1. BASE PLAN FROM FIGURE TITLED "EDGERLY EARLY CHILDHOOD DEVELOPMENT CENTER SOMERVILLE, MASSACHUSETTS FOUNDATION PLAN - PART 8" BY HMFH ARCHITECTS DATED 08/10/2001.

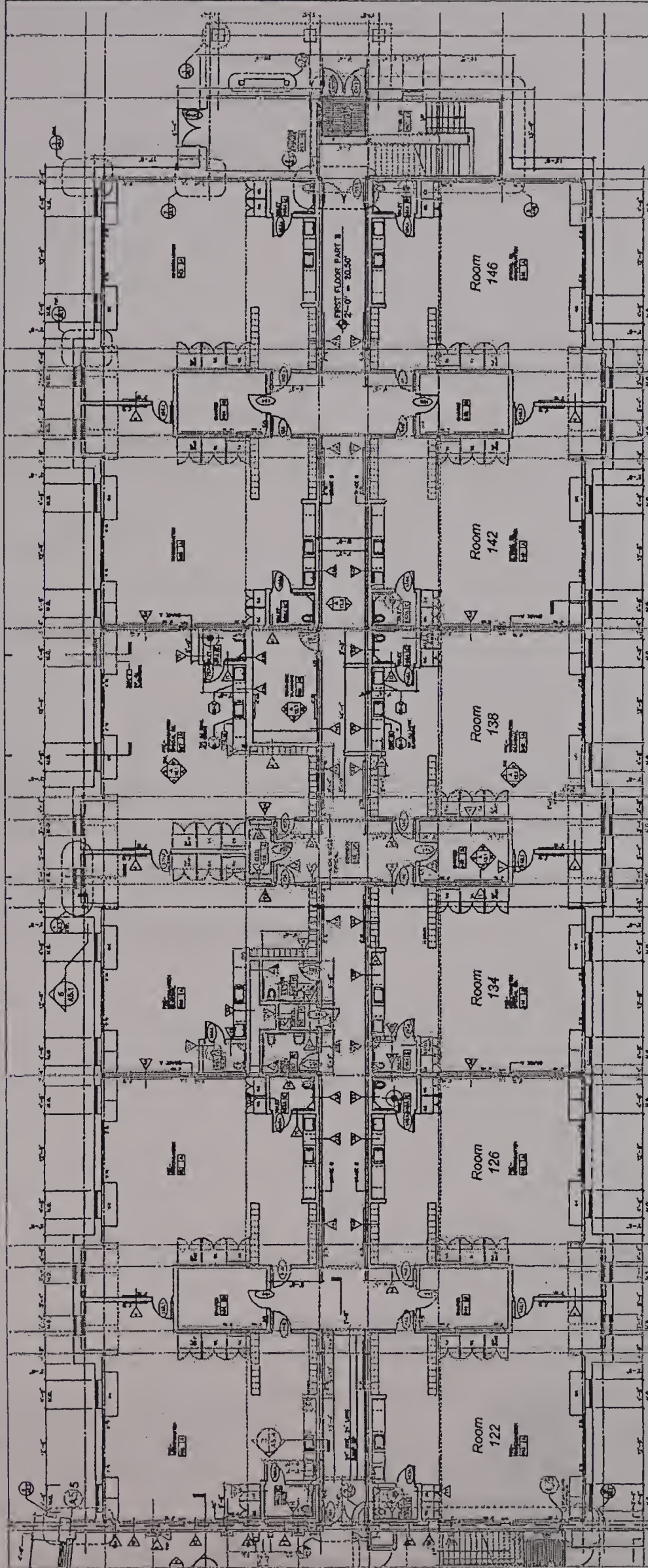
Sub-Slab Depressurization Design
Michael E. Capuano School
Somerville, Massachusetts



EXTERIOR PIPING
SCHEMATIC

Project 04516-2 January 2007 SSDS-2

N:04516-2-26 ptc/djm 1/17/07



LEGEND:

○ ● MONITORING POINT

NOTES:

1. BASE PLAN FROM FIGURE TITLED "EDGERLY EARLY CHILDHOOD DEVELOPMENT CENTER SOMERVILLE, MASSACHUSETTS FIRST FLOOR PL - PART B" BY HMFH ARCHITECTS DATED 08/10/01.

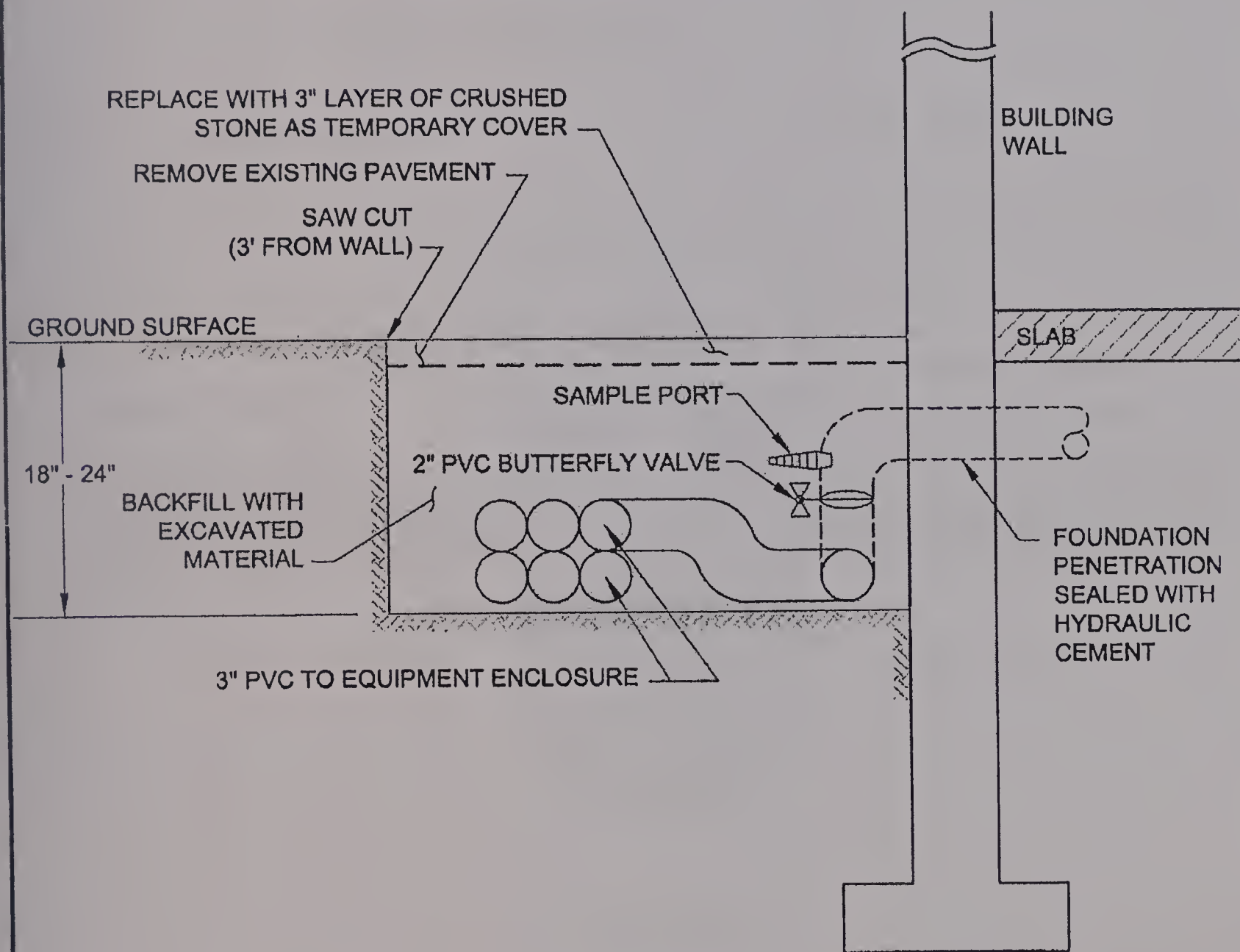
Sub-Slab Depressurization Design
Michael E. Capuano School
Somerville, Massachusetts



MONITORING POINT
LOCATIONS

Project 04516-2 January 2007 SSDS-3

N04516-2-21 plz/djm 1/16/07



NOT TO SCALE

Sub-Slab Depressurization Design
Michael E. Capuano School
Somerville, Massachusetts



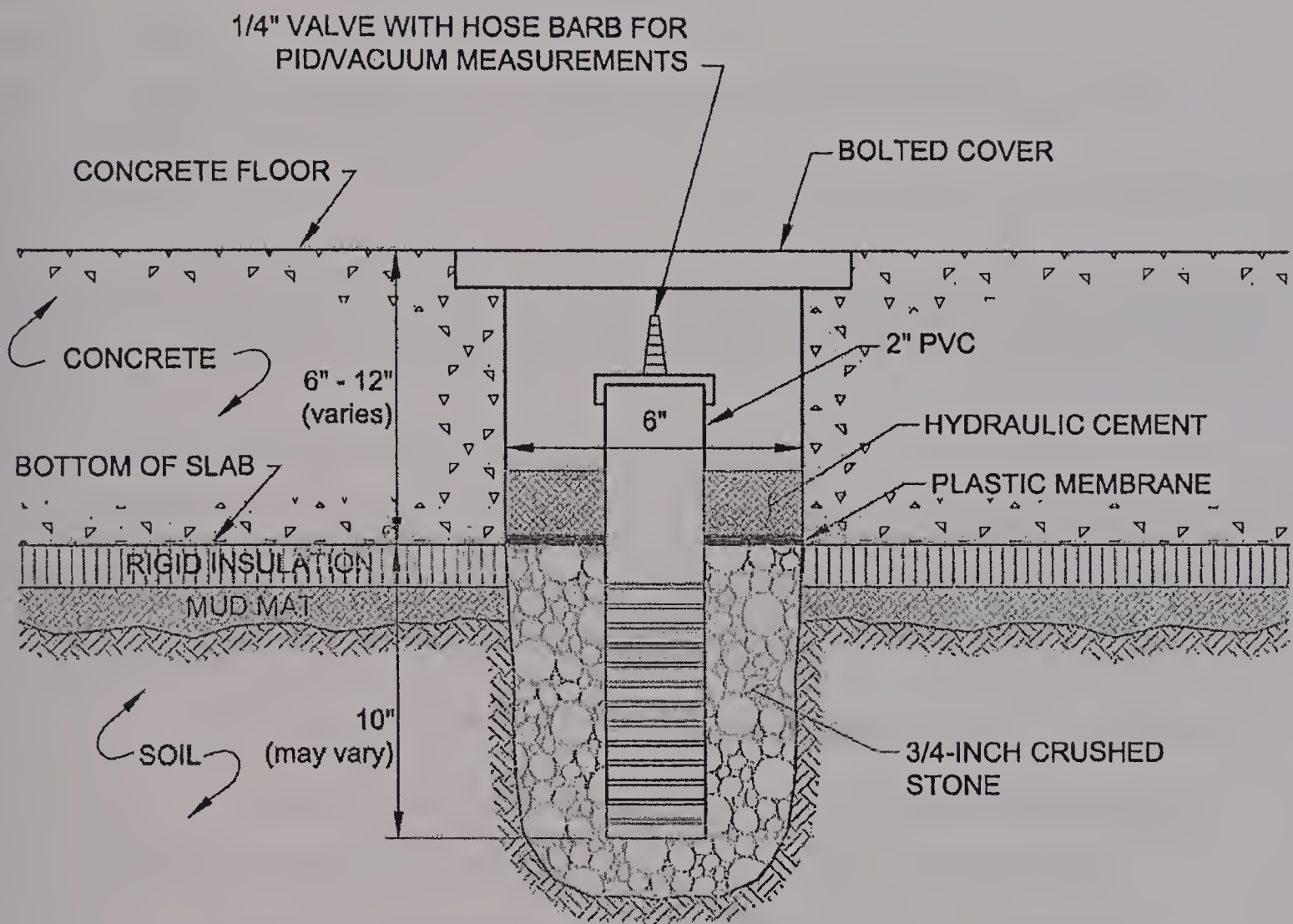
TRENCH EXCAVATION
CROSS SECTION

Project 04516-2

January 2007

SSDS-4

04516-2-23 ptc 1/17/07



NOT TO SCALE

Sub-Slab Depressurization Design
Michael E. Capuano School
Somerville, Massachusetts



SUB-SLAB
MONITORING POINT
DETAIL

Project 04516-2

January 2007

SSDS-5

04516-2-22 ptc 1/16/07

Memo

To: Ileen Gladstone, P.E., LSP
From: Jim Ash, P.E., LSP
CC:
Date: 1/22/2007
Re: Capuano Early Childhood Center – Response to DEP Request for Additional Information
 Interim Sub-Slab Depressurization System Design
 GEI Project Number – 045162

The Massachusetts Department of Environmental Protection (DEP) requested additional information regarding the Sub-Slab Depressurization System (SSDS) design for the Capuano Early Childhood Center. The following responses should satisfy their request; I discussed them with Kyle MacAfee of DEP on Friday January 19, 2007.

1. Please provide a monitoring plan for the proposed system.

Six sub-slab monitoring points will be installed inside the school at the same time that the interim system will be installed. Prior to start-up of the system we will measure:

- Subslab VOC concentrations at each of 6 monitoring points using a ppbRAE and collect subslab vapor samples using Summa canisters for laboratory analysis at 3 of the locations.
- Subslab pressure at each of 6 monitoring points using a manometer with a detection limit 0.01-inch water;
- Subslab VOC concentrations at each sub-slab piping penetration using a ppbRAE.

After startup of the system, will measure the following on a daily basis for one week:

- Subslab VOC concentrations at each of 6 monitoring points using a ppbRAE;
- Subslab pressure using a manometer with a detection limit 0.01-inch water.
- VOC concentrations at each sub-slab piping penetration using a ppbRAE;
- VOC concentrations in the combined influent to the blower in the temporary enclosure and from the exhaust stack at the roofline using a ppbRAE.

After 48 hours of operation of the system, we will measure:

- VOC concentrations inside Classrooms 122, 126, 134, 138, 142, 146 and 141 using Summa canisters for laboratory analysis;

After one week of operation of the system, we will measure:

- Subslab VOC concentrations at each of 6 monitoring points using a ppbRAE and collect subslab vapor samples using Summa canisters for laboratory analysis at 3 of the locations.;

- VOC concentrations in ambient air on the roof 20 feet downwind from the exhaust stack using Summa canisters for laboratory analysis.

After one month of operation of the system, we will measure monthly for three months:

- VOC concentrations inside Classrooms 126, 138, 142, 146 and 141 using Summa canisters for laboratory analysis;
- Subslab VOC concentrations at each of 6 monitoring points using a ppbRAE.
- VOC concentrations in the combined influent to the blower in the temporary enclosure and from the exhaust stack at the roofline using a ppbRAE;

After three months of operation of the system, additional monitoring, if required, will be evaluated and submitted to DEP for review and comment.

2. What are the criteria for establishing the appropriate area of influence of the system?

The primary criteria for the evaluating the effectiveness of the system is the effect on VOC concentrations in indoor air. Our goal is to reduce these concentrations to the extent feasible. The extent of influence of the system beneath the slab will be measured using a manometer with a detection limit 0.01-inch water. A reading of -0.01 inch of water or greater will be considered evidence of vacuum influence and an indication that subslab vapors are captured by the system.

3. What are the criteria for off-gas treatment?

We will use the criteria described in DEP Policy WSC-94-150, Off-Gas Treatment of Point-Source Remedial Air Emissions (1994), that off-gas treatment from the system is not required if the total air emission rate of all VOCs is less than 100 lbs. per year. We will also use the results of discharge sampling and the ambient air sampling downwind from the exhaust stack to confirm that the discharge does not result in an unacceptable risk to other potential downwind receptors.

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